

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Seminis Vegetable Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Brave Heart'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-seventh day of April, in the year two thousand and five.

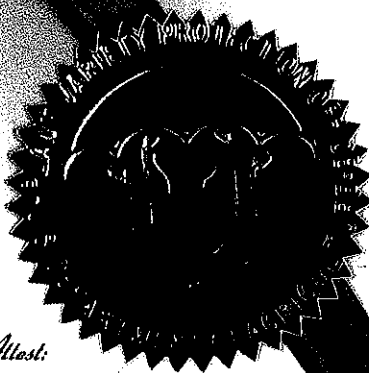
Attest:

[Signature]

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]

Secretary of Agriculture

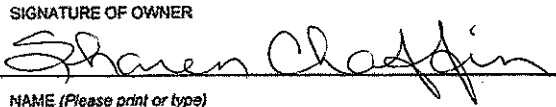


U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Seminis Vegetable Seeds, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME PSR 4837		3. VARIETY NAME Brave Heart	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 2700 Camino del Sol Oxnard, CA 93030-7967		5. TELEPHONE (Include area code) 805 647 1572		FOR OFFICIAL USE ONLY PVPO NUMBER 20020022	
		6. FAX (include area code) 805 918 2545			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION California		9. DATE OF INCORPORATION 04-Jun-1962	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Sharen Chaffin Seminis Vegetable Seeds, Inc. 37437 State Hwy 16 Woodland CA 95616				10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Marcel Bruins Seminis Vegetable Seeds, Inc. Nude 54D 6702 DN Wageningen The Netherlands mbruins@svseeds.nl Ph: 31 317 450218 Fax: 31 317 450217	
				FILING AND EXAMINATION FEES: \$ 2,705.⁰⁰ DATE 8/14/2002 CERTIFICATION FEE: \$ 432.⁰⁰ DATE 3/31/2005	
11. TELEPHONE (Include area code) 530 669 6172		12. FAX (Include area code) 530 666 4426		13. E-MAIL sharen.chaffin@seminis.com	
14. CROP KIND (Common Name) Lettuce					
15. GENUS AND SPECIES NAME OF CROP Lactuca sativa		16. FAMILY NAME (Botanical) Compositae		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act. <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22)		
			20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED		
			21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED NUMBER 1,2,3, etc. (If additional explanation is necessary, please use the space indicated on the reverse.)		
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		
24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER		
NAME (Please print or type) Sharen Chaffin			NAME (Please print or type)		
CAPACITY OR TITLE Specialist		DATE 8-13-02		CAPACITY OR TITLE	
				DATE	

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

200200222

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

US: November 1, 2001

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center—East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed/lsg-sd.htm>

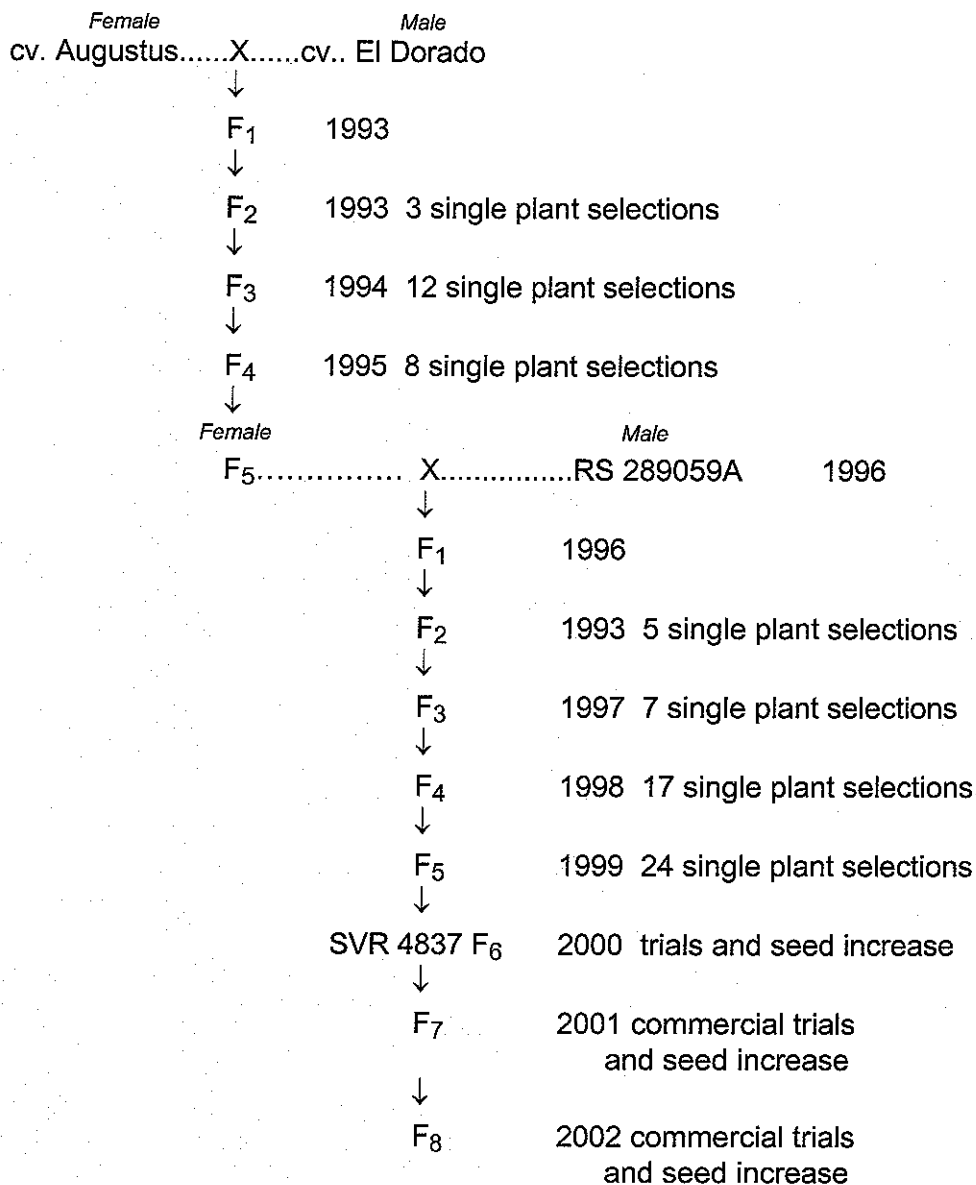
According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete.

Exhibit 16A. Origin and Breeding History of Lettuce Cv. Brave Heart (SVR 4837)

Pedigree of Cv. Brave Heart



Cv. Brave Heart (SVR 4837) originated in 1993 with the cross cv. Augustus by cv. El Dorado. An F₅ selection from this cross was crossed to RS 289059A in 1996. Single plant selections were made in subsequent years in the areas of intended commercialization. By F₆ a group of 2 families was judged uniform and bulked for trialing and seed increase. An F₇ mass was trialed extensively during 2001 and an increase of F₈ seed will be produced in the San Joaquin Valley of California this year.

The breeding work was carried out by Dr. William Waycott at the Seminis Vegetable Seed's Research Station at Arroyo Grande, California. Replicated field trials were conducted in production areas throughout Coastal California during 2001.

The breeding method employed was pedigree selection, using both single plant selection and mass selection practices. The selection criteria for cv. Brave Heart were:

1. a cultivar with increased uniformity, and improved heading ability adapted to growing conditions in Coastal California, when compared to the most similar varieties.
2. resistance to downy mildew.
3. resistance to corky root rot .

In trials of cv. Brave Heart during the **last four years covering generations F₆ to F₁₀**, we have seen neither genetic variants nor off-types in more than 15,000 plants **indicating that this variety is genetically uniform and stable.**

Exhibit 16B. Novelty Statement of Lettuce cv. Brave Heart (PSR 4837)

Cv. Brave Heart is described as a vigorous romaine lettuce cultivar adapted to Coastal California lettuce growing areas. Cv. Brave Heart is sown from October to December in Southern California and Western Arizona, from December to January in the San Joaquin Valley of California, and from January to August in the production areas of Coastal California. Cv. Brave Heart is resistant to California pathotypes I, IIA, IIB, III, IV, and V of downy mildew, and to corky root rot, strain CA1. Cv. Brave Heart was selected for improved uniformity and performance compared to the currently commercial cultivars grown during the same production periods as well as for the disease resistances listed above. (bL: 12/21/2004, per applicant's authorization)

Phenotypically, cv. Brave Heart is distinct from its most similar commercial cultivar, cv. Clemente. Cv. Brave Heart is taller, heavier, and more uniform in head formation and appearance when compared to cv. Clemente (Table 1). In replicated field trials, cv. Brave Heart exhibited more plants with uniformly tall heads, whereas cv. Clemente exhibited less uniformity of heading, with some plants having misshapened heads. The leaf color of cv. Brave Heart was consistently lighter (RHC color chart 146C), whereas the color value of cv. Clemente was 146B. Cv. Brave Heart is more susceptible to premature stem elongation (bolting) than is cv. Clemente.

Table 1. Evaluation of Brave Heart (PSR 4837) and the most similar cultivar, Clemente, for several important characters.

Trial No	Cultivar	Rep No.	Color ^a	Downy Mildew		Corky Root		Lettuce Mosaic		Plant Height ^e	Head Diam. ^f	Head Weight ^g	No. of Days to 15 cm ^h
				Resist. ^b	I,IIa,IIb,III,IV,V	Resist. ^c	Root Rot	Resist. ^d	Resist. ^d				
Trial 1: Evaluated 20 Feb 2002 Yuma, AZ	Brave Heart:	Rep. 1	146C	I,IIa,IIb,III,IV,V	Resist.	Suscept.	35.3±1.1	24.0±2.1	912±9.6	54			
		Rep. 2	146C	I,IIa,IIb,III,IV,V	Resist.	Suscept.	34.8±1.5	24.6±2.1	933±9.8	55			
		Average: 146C I,IIa,IIb,III,IV,V Resist. Suscept. 35.1±1.3 24.3±2.1 923±9.7 55											
		Rep. 1	146B	Suscept.	Resist.	Resist.	29.7±1.5	26.9±2.3	813±10.2	65			
		Rep. 2	146B	Suscept.	Resist.	Resist.	29.1±1.9	26.7±2.9	817±10.4	66			
Trial 2: Evaluated: 8 May 2002 Salinas Valley	Brave Heart:	Average: 146B Suscept. Resist. Resist. 29.4±1.7 26.8±2.6 815±10.3 66											
		Rep. 1	146C	I,IIa,IIb,III,IV,V	Resist.	Suscept.	34.9±1.4	24.5±2.2	896±9.6	54			
		Rep. 2	146C	I,IIa,IIb,III,IV,V	Resist.	Suscept.	35.4±0.9	24.2±1.9	944±9.5	53			
		Average: 146C I,IIa,IIb,III,IV,V Resist. Suscept. 35.2±1.2 24.4±2.1 922±9.6 54											
		Rep. 1	146B	Suscept.	Resist.	Resist.	28.9±1.9	26.8±2.7	821±10.1	64			
Trial 3: Evaluated: 8 May 2002 Salinas Valley	Clemente:	Rep. 2	146B	Suscept.	Resist.	Resist.	29.7±1.2	26.1±2.1	811±10.6	66			
		Average: 146B Suscept. Resist. Resist. 29.3±1.6 26.5±2.4 816±10.4 65											

^a Color evaluation was done using the Royal Horticultural Society color chart, U.K.^b Downy mildew survey reported as resistance to California Pathotypes I through V, using two replications each having 15 seedlings, grown in laboratory screens.^c Corky root rot survey of using five replications, each having 25 roots from plants grown in field trials in Monterey and Santa Maria Counties, CA, evaluated between June and August, 1997 and 1998.^d Lettuce mosaic virus survey using two replications each having 40 seedlings, grown in laboratory screens.^e Mean plant height using two sowing dates of 20 plants per replication in cm ± standard deviation.^f Mean head diameter using two sowing dates of 20 plants per replication in cm ± standard deviation.^g Mean head weight using two sowing dates of 20 plants per replication in grams ± standard deviation.^h Mean number of days until stem reaches 15 cm using two replications of 20 plants each.

OBJECTIVE DESCRIPTION OF VARIETY
LETTUCE *Lactuca sativa*

NAME OF APPLICANT (S) <u>Seminis Vegetable Seeds Inc</u> ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) <u>2700 Camino del Sol</u> <u>Oxnard CA 93030-7967</u>	FOR OFFICIAL USE ONLY PVPO NUMBER <u>200200222</u> VARIETY NAME <u>BRAVE HEART</u> EXPERIMENTAL DESIGNATION <u>PSR4831</u>
---	--

Place numbers in the boxes for the characters which best describe this variety. Measured data should be the mean of an appropriate number (at least 10) of well spaced plants. Royal Horticultural Society or any recognized color standard may be used to determine plant colors.

The location of the test area is: <u>CALIFORNIA AND ARIZONA</u>	Color System Used: <u>ROYAL HORT. Soc., U.K.</u>
--	---

1. PLANT TYPE: (See list of suggested check varieties page 4.)

<div style="border: 1px solid black; padding: 2px;">04</div>	01=Cutting/Leaf 02=Butterhead 03=Bibb 04=Cos or Romaine	05=Great Lakes Group 06=Vanguard Group 07=Imperial Group 08=Eastern (Ithaca) Group	09=Stem 10=Latin 11=OTHER
--	--	---	---------------------------------

2. SEED:

COLOR <div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> 1=White (Silver Gray) 2=Black (Gray Brown) 3=Brown (Amber)	LIGHT DORMANCY <div style="border: 1px solid black; padding: 2px; display: inline-block;">2</div> 1=Light Required 2=Light Not Required	HEAT DORMANCY <div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> 1=Susceptible 2=Not Susceptible
--	---	--

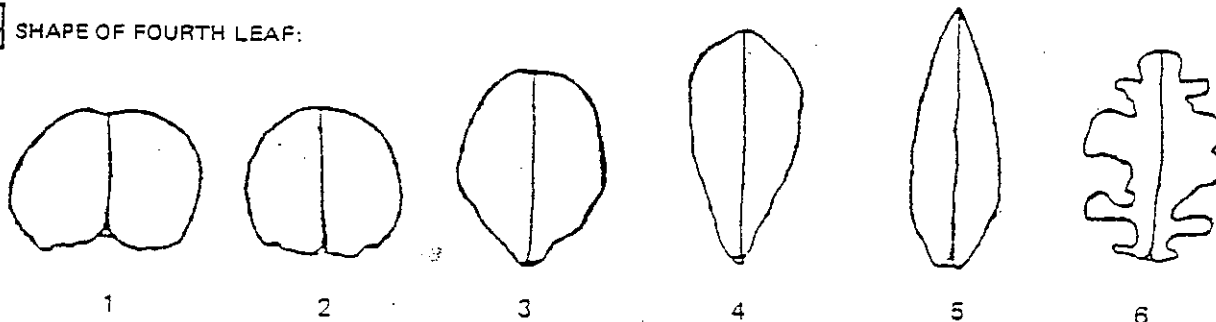
3. COTYLEDON TO FOURTH LEAF STAGE: NOTE: Provide a color photograph or photocopy of the fourth leaf from 20 day old seedling grown under optimal conditions.

3

 SHAPE OF COTYLEDONS: 1=Broad 2=Intermediate 3=Spatulate

4

 SHAPE OF FOURTH LEAF:



28

 LENGTH/WIDTH INDEX OF FOURTH LEAF: L/W x 10

<div style="border: 1px solid black; padding: 2px;">1</div>	APICAL MARGIN:	1=Entire 2=Crenate/Gnawed 3=Finely Dentate	4=Moderately Dentate 5=Coarsely Dentate 6=Incised	7=Lobed 8=OTHER (specify)
<div style="border: 1px solid black; padding: 2px;">4</div>	BASAL MARGIN:			
<div style="border: 1px solid black; padding: 2px;">1</div>	UNDULATION:	1=Flat	2=Slight	3=Medium 4=Marked
<div style="border: 1px solid black; padding: 2px;">3</div>	GREEN COLOR:	1=Yellow Green 2=Light Green	3=Medium Green 4=Dark Green	5=Blue Green 6=Silver Green 7=Gray Green
ANTHOCYANIN:				
<div style="border: 1px solid black; padding: 2px;">1</div>	DISTRIBUTION:	1=Absent 2=Margin Only	3=Spotted 4=Throughout	5=OTHER (specify)
<div style="border: 1px solid black; padding: 2px;">-</div>	CONCENTRATION:	1=Light	2=Moderate	3=Intense
<div style="border: 1px solid black; padding: 2px;">1</div>	ROLLING:	1=Absent	2=Present	
<div style="border: 1px solid black; padding: 2px;">1</div>	CUPPING:	1=Uncupped	2=Slight	3=Markedly
<div style="border: 1px solid black; padding: 2px;">1</div>	REFLEXING:	1=None	2=Apical Margin	3=Lateral Margins

4. MATURE LEAVES (observe harvest-mature outer leaves):

NOTE: Provide color photo of harvest-mature leaves which accurately shows color and margin characteristics.

200200222
270 00222

MARGIN:

<input type="checkbox"/> 1	INCISION DEPTH: (deepest penetration of the margin)	1=Absent/Shallow (Dark Green Boston)	2=Moderate (Vanguard)	3=Deep (Great Lakes 659)
<input type="checkbox"/> 1	INDENTATION: (finest divisions of the margin)	1=Entire (Dark Green Boston)	3=Deeply Dentate (Great Lakes 659)	5=OTHER (specify)
<input type="checkbox"/> 1	UNDULATION OF THE APICAL MARGIN:	2=Shallowly Dentate (Great Lakes 65)	4=Crenate (Vanguard)	
<input type="checkbox"/> 1		1=Absent/Slight (Dark Green Boston)	2=Moderate (Vanguard)	3=Strong (Great Lakes 659)
<input type="checkbox"/> 3	GREEN COLOR:	1=Very Light Green (Bibb)	3=Medium Green (Great Lakes)	5=Very Dark Green
		2=Light Green (Minetto)	4=Dark Green (Vanguard)	6=OTHER
ANTHOCYANIN (grown at or below 10 C):				
<input type="checkbox"/> 1	DISTRIBUTION:	1=Absent	3=Spotted (Calif. Cream Butter)	5=OTHER (specify)
		2=Margin Only (Big Boston)	4=Throughout (Prize Head)	
<input type="checkbox"/> -	CONCENTRATION:	1=Light (Iceberg)	2=Moderate (Prize Head)	3=Intense (Ruby)
<input type="checkbox"/> 3	SIZE:	1=Small	2=Medium	3=Large
<input type="checkbox"/> 2	GLOSSINESS:	1=Dull (Vanguard)	2=Moderate (Salinas)	3=Glossy (Great Lakes)
<input type="checkbox"/> 1	BLISTERING:	1=Absent/Slight (Salinas)	2=Moderate (Vanguard)	3=Strong (Prize Head)
<input type="checkbox"/> 2	LEAF THICKNESS:	1=Thin	2=Intermediate	3=Thick
<input type="checkbox"/> 1	TRICHOMES:	1=Absent (smooth)	2=Present (spiny)	

5. PLANT (at market stage. Choose a comparison variety appropriate for this type.):

SPREAD OF FRAME LEAVES:

☐ 35 cm This Variety ☐ 38 cm CLEMENTE (specify comparison variety)

HEAD DIAMETER (market trimmed with single cap leaf):

☐ 24 cm This Variety ☐ 27 cm CLEMENTE (specify comparison variety)

☐ 4 HEAD SHAPE: 1=Flattened 3=Spherical 5=Non-Heading
2=Slightly Flattened 4=Elongate 6=OTHER

☐ 3 HEAD SIZE CLASS: 1=Small 2=Medium 3=Large

☐ 24 HEAD COUNT PER CARTON

HEAD WEIGHT:

☐ 923 g This Variety ☐ 816 g CLEMENTE (specify comparison variety)

☐ 2 HEAD FIRMNESS: 1=Loose 3=Firm
2=Moderate 4=Very Firm

6. BUTT (bottom of market-trimmed head):

☐ 3 SHAPE: 1=Slightly Concave 2=Flat 3=Rounded

☐ 3 MIDRIB: 1=Flattened (Salinas) 2=Moderately Raised 3=Prominently Raised (Great Lakes 659)

7. CORE (stem of market-trimmed head):

☐ 45 mm Diameter at base of head

☐ 5.3 Ratio of head diameter/core diameter

☐ 77 Core height from base of head to apex:
mm This Variety ☐ 65 mm CLEMENTE (specify comparison variety)

8. BOLTING (Give First Water Date 23 APR 2002):

NOTE: First Water Date is the date seed first receives adequate moisture to germinate. This can and often does equal the planting date.

☐ 55 Number of days from First Water Date to seed stalk emergence (summer conditions):
This Variety ☐ 66 CLEMENTE (specify comparison variety)

☐ 4 BOLTING CLASS: 1=Very Slow 3=Medium 5=Very Rapid
2=Slow 4=Rapid

☐ 106 Height of mature seed stalk:
cm This Variety ☐ 89 cm CLEMENTE (specify comparison variety)

8. BOLTING cont'd.

46

Spread of Bolter Plant (at widest point):

cm This Variety

47 cm

CLEMENTE

(specify comparison variety)

200200222

1

BOLTER LEAVES:

1=Straight

2=Curved

1

MARGIN:

1=Entire

2=Dentate

3

COLOR:

1=Light Green

2=Medium Green

3=Dark Green

BOLTER HABIT:

2

TERMINAL INFLORESCENCE:

1=Absent

2=Present

2

LATERAL SHOOTS:
(above head)

1=Absent

2=Present

1

BASAL SIDE SHOOTS:

1=Absent

2=Present

9. MATURITY (earliness of harvest-mature head formation):

NOTE: Complete this section for at least one season.

SEASON	Applic. 1/ #of days	Check 1/ #of days	CHECK VARIETY 2/
Spring	93	101	CLEMENTE
Summer	57	63	
Fall	70	76	
Winter	90	95	

Give planting date(s), and location(s):

Spring

CENTRAL CALIFORNIA COAST

15 JANUARY

To 15 AUGUST

Summer

Fall

Winter

SOUTHERN CALIFORNIA WESTERN ARIZONA

15 OCTOBER TO 1 DECEMBER

1/ First water date to harvest.

2/ Fill in check variety name on the appropriate line.

10. ADAPTATION:

PRIMARY REGIONS OF ADAPTION (tested and proven adapted):

(0=Not tested

1=Not Adapted

2=Adapted)

2

Southwest (Calif., Ariz. desert)

2

West Coast

0

Northeast

0

Northcentral

0

Southeast

0

OTHER

SEASON:

2

Spring (area

CENTRAL CALIF. COAST

2

Fall (area

CENTRAL CALIF COAST

2

Summer (area

CENTRAL CALIF COAST

2

Winter (area

IMPERIAL VALLEY, YUMA

1

GREENHOUSE:

0=Not tested

1=Not Adapted

2=Adapted

1

SOIL TYPE:

1=Mineral

2=Organic

3=Both

11. DISEASES AND STRESS REACTIONS (0=Not tested; 1=Susceptible; 2=Intermediate; 3=Resistant; 4=Highly resistant; 5=Tolerant)

200200222

VIRUS

- ☒ Big Vein
☒ Lettuce Mosaic
☐ Cucumber Mosaic
☐ Broad Bean Wilt
☐ Turnip Mosaic
☐ Beet Western Yellows
☐ Lett. Infectious Yellows
☐ Other Virus _____

FUNGAL/BACTERIAL

- ☐ Corky Root Rot (Pythium Root Rot)
☒ Downy Mildew (Races CAI, IA, IIB, III, IV, V
 (BT#12/21/2004 per applicant's authorization))
☐ Powdery Mildew
☐ Sclerotinia Rot
☐ Bacterial Soft Rot (Pseudomonas spp. & others)
☐ Botrytis (Gray Mold)
☒ OTHER Rhizomonas suberifaciens

INSECTS

- ☐ Cabbage Loopers
☐ Root Aphids
☐ Green Peach Aphid
☐ Other Insect _____

PHYSIOLOGICAL/STRESS

- ☒ Tipburn
☐ Heat
☐ Drought
☒ Cold
☐ Salt
☐ Brown Rib (Rib Discoloration, Rib Blight)
☐ OTHER _____

POST HARVEST

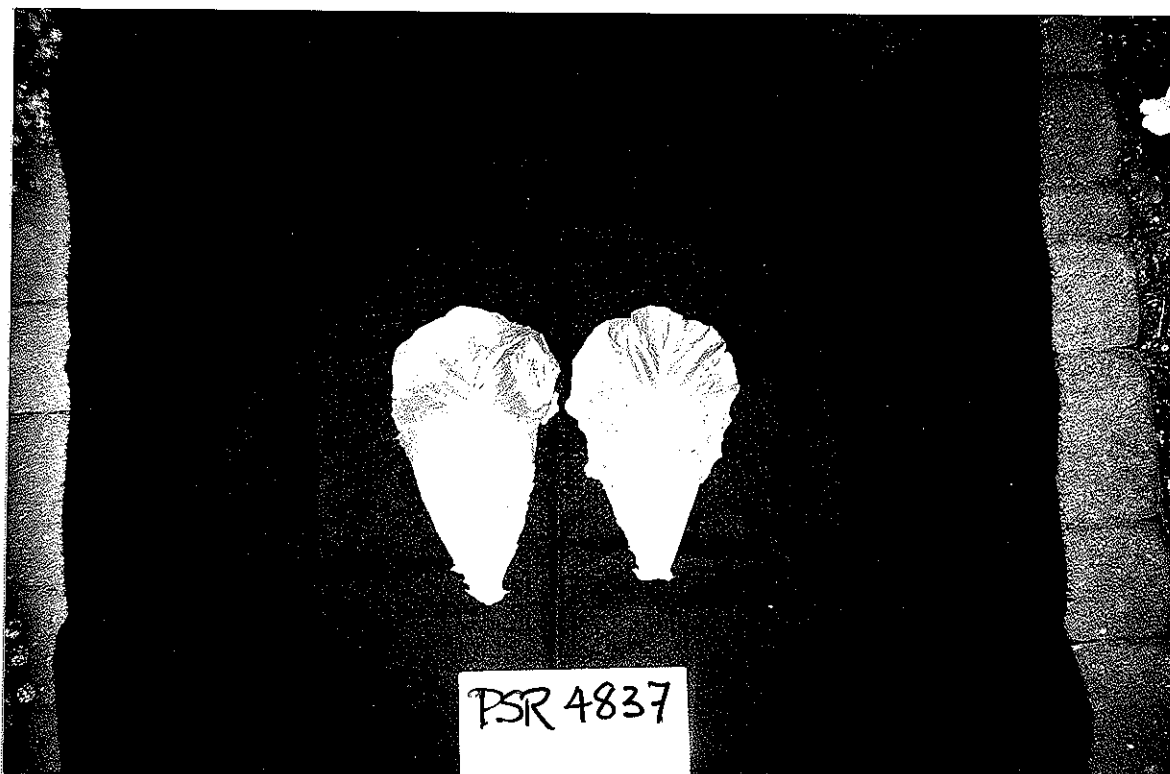
- ☐ Pink Rib
☐ Russet Spotting
☐ Rusty Brown Discoloration
☐ Internal Rib Necrosis (Blackheart, Gray Rib, Gray Streak)
☐ Brown Stain

12. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:

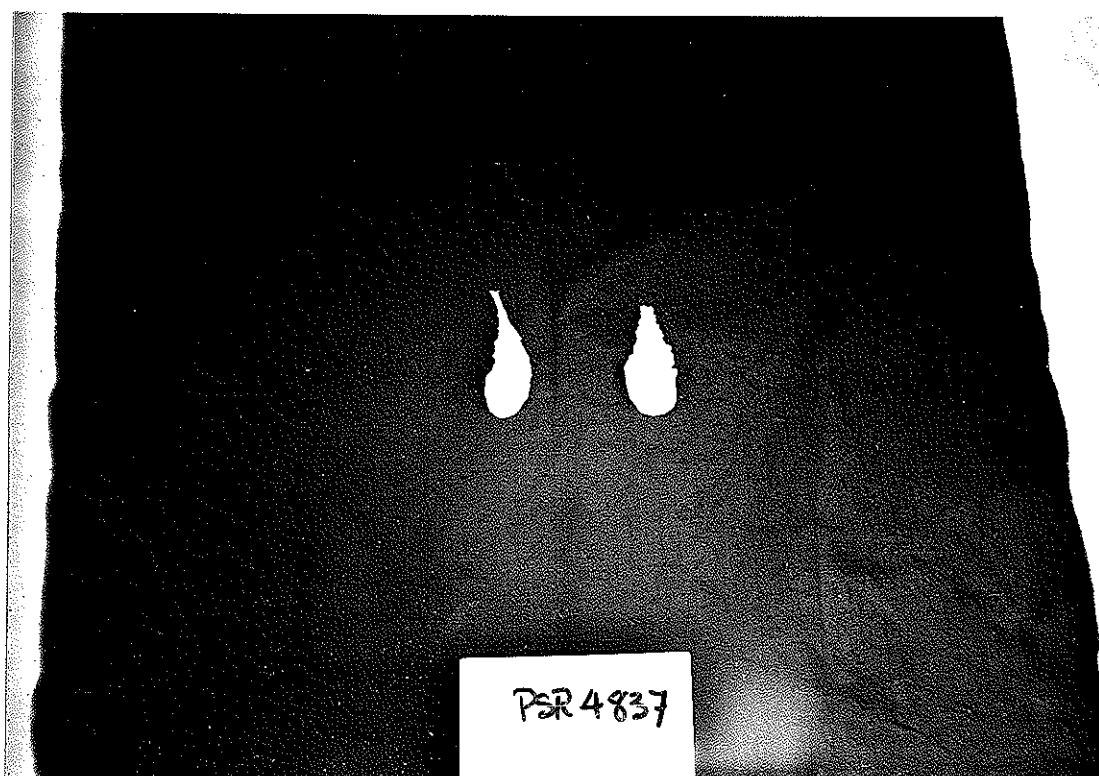
13. COMMENTS:

SUGGESTED CHECK VARIETIES

TYPE	CHECK VARIETY
1) CUTTING/LEAF	SALAD BOWL
2) BUTTERHEAD	DARK GREEN BOSTON
3) BIBB	BIBB
4) COS, OR ROMAINE	PARRIS ISLAND
5) GREAT LAKES GROUP	GREAT LAKES 659-700
6) VANGUARD GROUP	VANGUARD
7) IMPERIAL GROUP	VIVA
8) EASTERN GROUP	ITHACA
9) STEM	CELTUCE
10) LATIN	MATCHLESS



Fourth leaf from 20-day old seedlings, cv. Brave Heart (PSR 4837)



Harvest-mature leaf, cv. Brave Heart (PSR 4837)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Seminis Vegetable Seeds, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER PSR 4837	3. VARIETY NAME Brave Heart
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 2700 Camino del Sol Oxnard, CA 93030-7967	5. TELEPHONE (include area code) 805 647 1572	6. FAX (include area code) 805 918 2545
7. PVPO NUMBER 200200222		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

The variety named in this application was developed by the Seminis Vegetable Seeds, Inc., employee (breeder) named below. By agreement between employee and Seminis Vegetable Seeds, Inc., all rights to any invention, discovery, or development made by an employee are assigned to the Company. No rights to such invention, discovery, or development are retained by the employee.

Employee (Breeder): Bill Waycott

Site Location: Arroyo Grande, CA

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.